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Photography 2010

## Quarterly Newsletter

National Weather Service  
Phoenix, AZ

### Summer 2015 Edition Newsletter

By Charlotte Dewey, Meteorologist

The Summer Monsoon is an exciting time here in Arizona. Aside from the endless days of triple digit temperatures, the sporadic and sometimes random nature of Monsoon thunderstorms bring all sorts of weather phenomena to the Desert Southwest. Dust storms, microburst/downburst wind damage, heavy rain and flooding, as well as electrifying lightning storms. Now that Monsoon 2015 is behind us, let's take a look at how it turned out.

We look forward to many more newsletters coming out with great information that will hopefully be helpful and informative.



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- AWIPS-2: What's that?
- Summer Student Program
- Regional Acting MIC Rotation
- Monsoon 2015 Wrap-Up
- WFO Phoenix Staff Spotlight

### Office Leadership

**Meteorologist in Charge:** Jeral Estupinan

**Warning Coordination Meteorologist:** Ken Waters

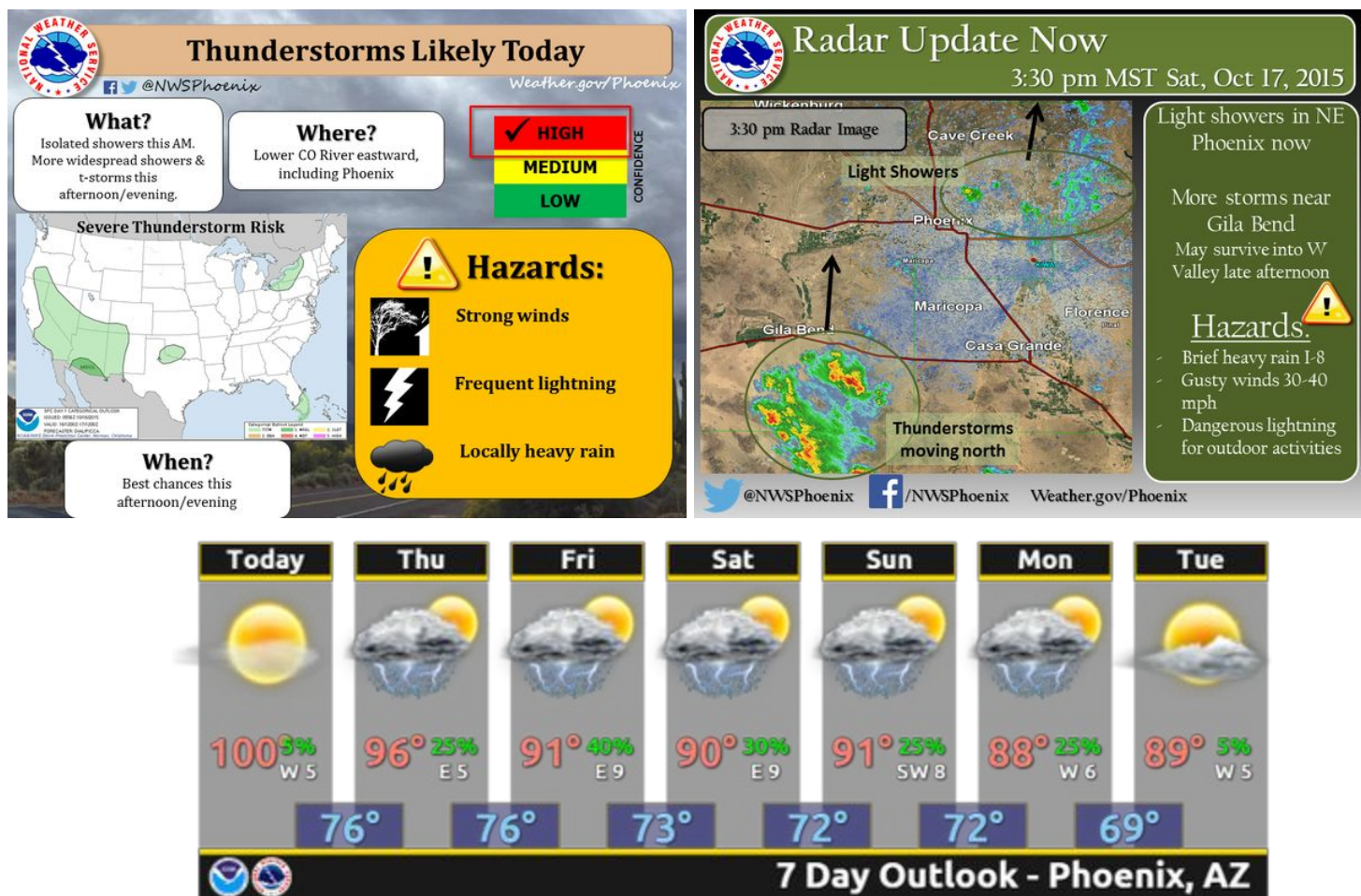
**Science and Operations Officer:** Paul Iñiguez

**Questions:** [w-psr.webmaster@noaa.gov](mailto:w-psr.webmaster@noaa.gov)

# Changing Communication Outlets

By Ken Waters, Warning and Coordination Meteorologist

The National Weather Service continues to modernize as it finds more effective methods to reach more of the public. This is most obvious in the agency's adoption of social media outlets including Facebook and Twitter. We regularly use these mediums to share updates on current weather conditions and short-term outlooks. In addition, graphical Weather Story's are regularly posted to the Internet at <http://weather.gov/phoenix>.



Two outdated legacy text products have been removed in 2015 since they have been replaced with these new methods of getting the weather story out there. One is the Hazardous Weather Outlook, which provided a very general 7-day outlook without much detail. Now, more definitive and informative ways are being used to convey the same information and much more. Another old text product was known as the Short Term Forecast, or "Nowcast". This product was basically a short-term update (current to the next 3 hours) but its reach was limited to only a few customers. The same information can now be relayed at a much higher frequency and to a much larger audience using tools such as Twitter and (for emergency management and media partners) an advanced chat service.

The National Weather Service continues to embrace new technologies to reach the widest audience possible in order to deliver life-saving weather warnings.



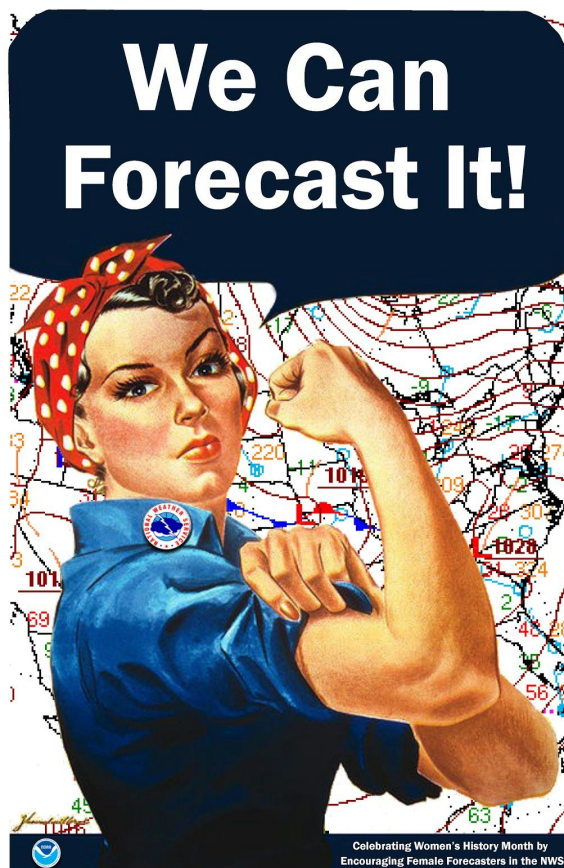
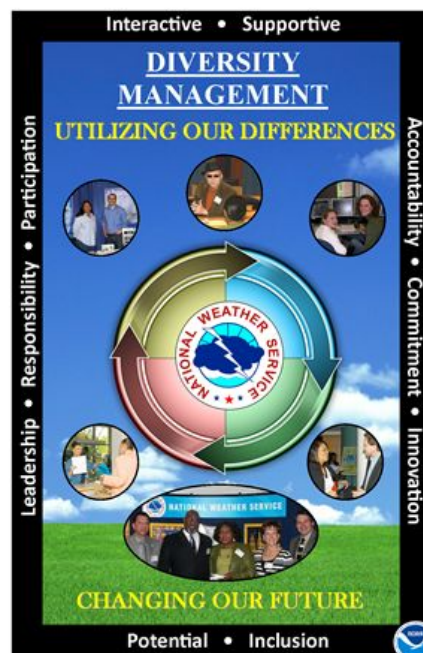
## Diversity Activities at NWS Phoenix

By Bianca Hernandez, Meteorologist Intern

In order for the National Weather Service to successfully carry out its mission, it is important for the organization to hire employees with a mixture of differences and similarities. This allows us to grow as an office by utilizing the different characteristics that our colleagues bring to our team. With this being said, in order for us to make use of these differences and similarities we must take the time to learn about each other. As the diversity focal point, I have worked on making each month's theme centered on the employees in our office in order for us to have a better understanding of each other.

August 26, 2015, Women's Equality Day, is a day proclaimed each year by the U.S. president that signifies the anniversary of the 19<sup>th</sup> amendment, which granted women the right to vote throughout the country. Not too long after the amendment was ratified in 1920, the United States entered a global war, World War II, and the demand for women in the workplace was high as a result of filling positions of men that were serving during the war. As a result, more than 900 women were employed by the Weather Bureau as observers and forecasters during WW2 and now here we are today in 2015 where an all-female shift is completely possible! In order to celebrate the women in the National Weather Service, the month of August in our office was dedicated to Women's Equality.

September 15<sup>th</sup> through October 15<sup>th</sup> has been declared as Hispanic Heritage Month to recognize the contributions of Hispanic and Latino Americans to the United States. In our office, we have several employees that come from a Hispanic background! Therefore, to learn more about the Hispanic heritage and culture, there will be a luncheon during Hispanic Heritage Month that will give the Hispanic employees an opportunity to bring in food and share stories about their background.



# AWIPS-2 Comes to WFO Phoenix

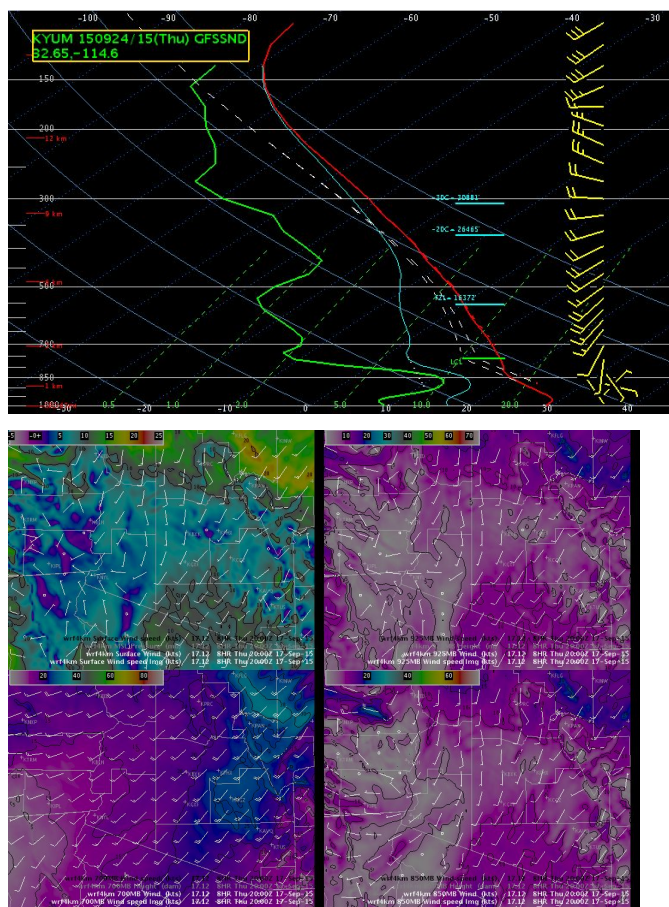
By Dan Leins, Lead Forecaster

In March of this year, NWS Phoenix underwent an upgrade to the latest generation of weather display/interrogation software. AWIPS-2 (Advanced Weather Interactive Processing System - Version 2) has been rolled out to all National Weather Service Offices over the past several years, with the goal of enhancing our current (and future) operational capabilities. The previous software we used (AWIPS-1) was developed in the mid 1990's and while it still functioned as needed, it became progressively more difficult to update as time went on. AWIPS-2 is written in programming languages that are widely used today, much easier to understand, and more efficient than their 1990's counterparts.

So what are the main "features" of AWIPS-2 that we've used so far? For starters, it's significantly easier to bring in new model data for our forecasters to interrogate. Developers are constantly coming up with new ways to look at forecast data (i.e. new variables within the forecast models, layers and levels in the atmosphere), and these new ideas can easily be integrated into our software. Likewise, a new program was developed to look at temperatures, dewpoints, and winds from the surface of the earth to the top of the atmosphere. This program now contains more up-to-date equations to help forecasters determine how likely (or unlikely) storms are on a given day. Finally, we can now share our display screens with neighboring offices if we need to collaborate virtually during the forecast process.

What about the future? What else will AWIPS-2 offer our staff? In the very near future (later this year), we will start receiving new radar and rainfall estimate data, whose goal is help improve severe weather and flood forecasting. New forecast model datasets will arrive in 2016 which will help promote consistent forecasts from one office to the next. Numerous Geographic Information System (GIS) datasets have already been integrated into the system and we can easily add new data as it becomes available

(including census data, low water crossings and flood-prone areas, highway mile-markers near high-impact areas). Finally (estimated in 2017), a new weather satellite will be launched which will contain substantially more data than we receive at present. Satellite data will be available much more frequently (every few minutes) and will be much higher resolution. All of these new capabilities are designed with the goal of providing better forecasts and better warnings, and none of these enhancements would have been possible without the arrival AWIPS-2.



# Summer Student Volunteer Program

By Paul Iñiguez, Science and Operations Officer

For the past several years, the NWS Phoenix office offered a mentorship program for college students. This program gave the students an opportunity to interact closely with one of our forecasters and learn in more detail what it means to be an operational meteorologist, what it takes to break in, and help them explore what kind of career they may want to have. This has been a very successful and popular program, but we typically only offered it during the academic year.

To provide better career training opportunities for students and to support our operations during our busy Monsoon, we established a volunteer program for upper class undergraduate and graduate college meteorology students. The volunteer program compliments the mentorship program. Several students applied and we ultimately accepted four for Monsoon 2015.

Throughout the Monsoon, the students volunteered in the office for around 80 hours during the evening hours. When the weather was quiet, they would work on various projects, interact with the staff, and conduct the 00 UTC (5 PM MST) weather balloon launch. During busy nights with lots of thunderstorm activity, they would help by answering phones (incoming spotter storm reports), monitor social media activity, and any other tasks given by the forecasters.

We hope to offer this program again for Monsoon 2016. Before then, we will be conducting another session of our mentorship program. For anyone interested, please watch our website and social media platforms for the announcement for applications.

Anna Raxter, student helping launch a Weather Balloon at NWS Phoenix.





## Acting MIC “Tour of Duty” 2014-2015

By Charlotte Dewey, Meteorologist

From September 2014 through June of 2015, the NWS Phoenix office had rotating Acting Meteorologists In Charge (MICs) from various offices and locations throughout the Western Region of the National Weather Service. Our office was short-staffed, without a Science and Operations Officer and a Meteorologist in Charge, and with large events coming up on the horizon including Super Bowl XLIX, any extra help was appreciated.

Throughout the AMIC “tour of duty”, 6 individuals rotated through NWS Phoenix for a period of time. I’d like to introduce you to those gentlemen that went out of their way to take the reigns of Phoenix and help our office progress forward during our short-staffed time period.

Larry Dunn, Meteorologist in Charge in Salt Lake City, UT. Larry came to us in September 2014 for our first AMIC duty. Larry has since retired from Salt Lake after 36 years of government service. Some have considered him as one of the leading innovators and “movers and shakers” of the NWS. During the pre-modernization days, Larry and fellow scientist Brad Colman were known as sort of the prototype SOOs (Science and Operations Officers), helping to invent the position, as Larry held the SOO position in Salt Lake. He eventually became the MIC at Salt Lake City and moved the office into a new era of decision support services. To his credit, WFO SLC is often touted as one of the most progressive offices in NWS.

Dan Keeton was next to join us, as the Meteorologist in Charge in Sacramento, CA. Dan has been in the MIC role in Sacramento since 2009. Aside from his tour in Phoenix, he was also an acting MIC for San Francisco/Monterey and Hanford in the last year! Dan truly enjoyed getting to know the dedicated and talented people at WFO Phoenix. It reminded him that the NWS is full of great people who are trying to do the right thing and eager to work together for good. When asked, he said he was impressed with the relationships we had developed with customers--especially the Aviation community. He had never heard of SRP (Salt River Project) and did not know we were co-located with them. He enjoyed driving just 5 minute to work everyday.

Next up, Keith Meier, Meteorologist in Charge in Billings, MT. Keith has been the MIC at WFO Billings since 2000, and prior to that he was the SOO in Billings for 5 years and then Western Region Headquarters for 3 years. While in Phoenix, Keith took advantage of his time to get to know the area, attending Suns/Spurs (NBA) game, an ASU/Utah (College) Football game, Cardinals/Lions (NFL) game and a Coyotes/Capitals (NHL) hockey match. He also found time to explore northern Arizona (Sedona and Flagstaff). Being immersed in a different office for an extensive time provided him the perspective on differing practices and procedures within WFO operations and administration. Keith enjoyed the opportunity to help the staff implement a few new practices and procedures, revise a few others and continue to move into the future. Being part of the WFO’s support for the Super Bowl was especially unique for him, especially considering the unusual fog event that impacted that particular weekend. Keith said he always enjoys getting the opportunity to meet new people, so the time spent getting to know Team Phoenix was very rewarding. He certainly felt like he made a number of new friends in working closely with nearly everyone on a variety of efforts during his time here.

On a side note, both Dan Keeton and Keith Meier fulfilled two rotations here in Phoenix. A big high-five to them for making their way back to Phoenix for a second round!

Up next was Bruce Bauck, Meteorologist in Charge in Missoula, MT. Bruce has been the MIC in Missoula since early 2003, and prior to that he was the MIC in Pendleton, Oregon for 5 years. Bruce said he enjoyed getting to know and appreciate the staff that work at WFO Phoenix and seeing different ways of conducting service. He said he liked how WFO Phoenix focused on big events and providing service such as the Super Bowl in January 2015 and the American Meteorological Society (AMS) meeting which was held in Phoenix this year. Bruce commented on how well the Phoenix staff stepped up without complaint, when very short (continued)

## Acting MIC “Tour of Duty” 2014-2015 (Continued)

staffed, and filled in where needed. Several positions and programs had high needs such as the Administrative Support Assistant (ASA) program, the SOO science and training areas, new IDSS centric service programs, among a few others.

Our next Acting MIC came to us from Boise, ID, Robert “Bob” Diaz. Bob has been the MIC in Boise since July 2011, and was one of the last Deputy MIC’s in Western Region at WFO Monterey back in the mid 1990s. He has been Acting MIC at Monterey and Glasgow as well. Previous MIC positions held by Bob included Billings, MT. Bob enjoyed getting to work with the staff at WFO Phoenix and getting to know us. During Bob’s time here, he enjoyed the great Mexican restaurants and nearby hiking. He brought a great deal of enthusiasm and positive attitude into our office. Bob was crucial to our office during the big AWIPS II upgrade and the post-event(s) debriefing after a very busy January with events including Super Bowl XLIX, Annual AMS meeting, Pro-Bowl, PGA Phoenix Open among some of the bigger named events. What Bob didn’t know about our office, was what goes into preparing for our Monsoon Season and the talented staff we have here in Phoenix. He said the office made him feel right at home and it was an honor to be able to work with all of us.

The sixth and final Acting MIC goes to Todd Morris, previous MIC at Los Angeles/Oxnard and Santa Maria for more than 10 years. Todd currently works at the regional level for Western Region Headquarters coordinating decision support activities for the NWS and other federal agencies. Todd served the longest term as Acting MIC from early March to mid June, before the permanent selection of MIC arrived on station. Todd mentioned a few things he did not know about the office prior to arriving. He noted the strong relationship we, NWS Phoenix, have with Arizona State University. Also, he mentioned not knowing that our office serves the 4th more populous county (Maricopa) in the country with over 4 million people. Our office not only has a large population to protect, but a large area to cover for travel for maintenance.

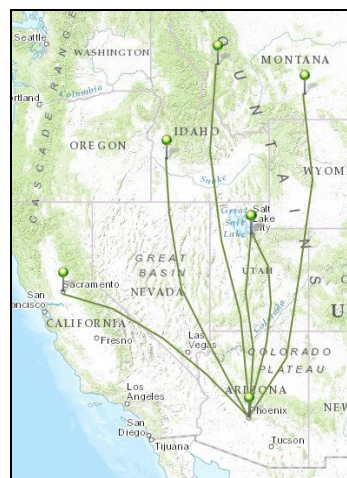
Todd enjoyed learning about and working with the staff. The southwest flair of the city was enticing, but he noted getting to know the staff was most enjoyable. Todd was able to help accommodate the staff’s strengths and uniqueness while he was here.

He developed several great friendships that will last long after his departure. Todd said, “I can honestly say, it was the most rewarding experience of my nearly 34 year career with the NWS.”

~

For over 10 months, NWS Phoenix was under a large amount of change and turn over. During this time growing pains were common and fear of the unknown was very present. One thing I think we all learned, the staff at NWS Phoenix, was the difference in leadership styles and how to adapt during changing times. Large scale high-impact decision support events forced us as an office to come together, act quickly and efficiently and learn to lean on each other when we needed it. Having different perspectives and viewpoints from new managers was both encouraging and frustrating for some, I’m sure. But looking back on the entire experience, I think everyone learned from each other and we all survived.

Personally, I’d like to thank all of the gentlemen that took time out of their normal duties and spent time away from their families to come to Phoenix. I thoroughly enjoyed getting to know and learning from some incredible leaders we have in Western Region!



## 2015 Monsoon Wrap-up

By Mark O'Malley, Forecaster/Climate Program Manager

The 2015 North American Monsoon season will be characterized as warmer than average for the state of Arizona and Southeast California. Like most monsoon seasons, rainfall amounts varied widely between cities, and even from neighborhood to neighborhood. However, when averaged across the entire region, the 2015 North American monsoon produced around average rainfall amounts.

This monsoon season began quite actively across the southeast parts of Arizona with several thunderstorm complexes throughout the 2nd half of June. While rainfall was not plentiful through central Arizona, numerous dust storms made their way north into the communities of Casa Grande, Gila Bend, and Phoenix. While Tucson and SE Arizona experienced repeated thunderstorm days in the beginning of July, points to the north and west had to wait until the middle of the month before activity really increased. Thanks to the remnant moisture from a decaying Tropical Storm (Delores), widespread strong thunderstorms and heavy rainfall developed on July 18th and produced [damage and flooding in the town of Wickenburg](#).

This was just the beginning of a period of active and destructive weather across the region. On the very next day, July 19th, strong storms erupted over Southeast California producing large hail, strong damaging winds, and incredible flooding rainfall. One individual storm over Eastern Riverside County dumped over 5 inches of rain in a very short time period along I-10 near Desert Center. Extreme flooding in [Tex Wash completely washed out one side of the Interstate](#), shutting down a major transportation corridor for over a week.

Isolated storms with spotty damaging winds, heavy rain, and blowing dust affected much of southern and central Arizona during the latter portions of July and beginning of August. However, most of these storms remained on the outskirts of town and had minimal impacts on the communities of central Arizona. More widespread thunderstorm activity hit the Phoenix metropolitan area in the middle of August with [two rounds of storms on August 11th](#). Periodic thunderstorms were common through the 2nd half of

August culminating in another round of [damaging winds and flooding on August 31st](#). Central Arizona wasn't the only location susceptible to severe storms this monsoon season, with blowing dust, damaging winds, and flooding hitting the [Yuma and Somerton areas on September 8th](#).

### Phoenix Sky Harbor 2015 Monsoon Season Statistics

Element	Value	1981-2010 Avg	Rank
Total Rainfall	3.29 inches	2.71 inches	35th Wettest
Avg Max Temperature	105.4 degrees	103.9 degrees	7th Warmest
Avg Min Temperature	83.6 degrees	80.9 degrees	Warmest Ever
Average Temperature	94.5 degrees	92.4 degrees	Tied 2nd Warmest

Measure	Value	1981-2010 Avg
Number of 100 degree days	93	87
Number of 110 degree days	20	17
Number of rainfall days	16	12

### Yuma Airport 2015 Monsoon Season Statistics

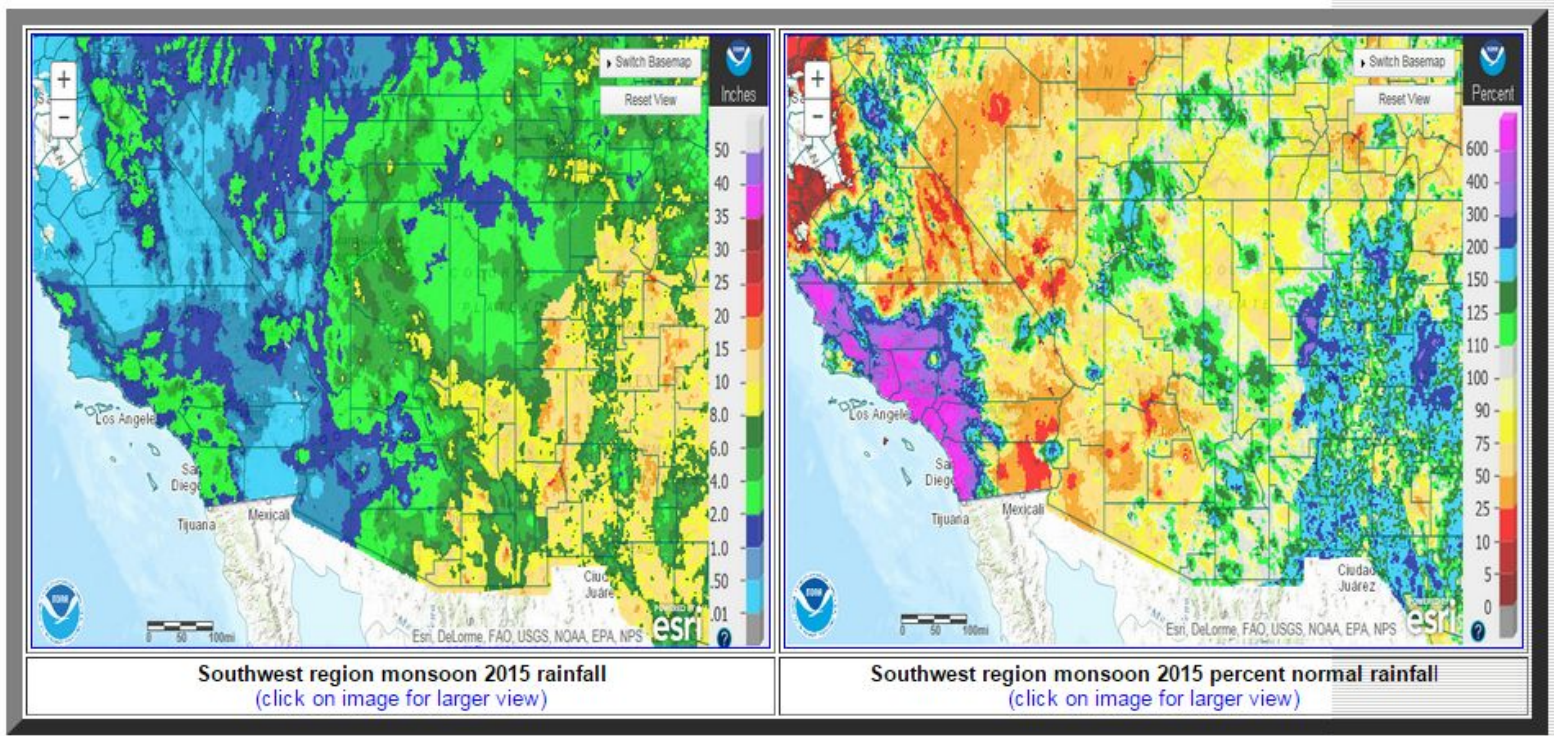
Element	Value	1981-2010 Avg	Rank
Total Rainfall	1.06 inches	1.30 inches	50th Wettest
Avg Max Temperature	106.2 degrees	104.9 degrees	Tied 18th Warmest
Avg Min Temperature	82.7 degrees	79.9 degrees	Warmest Ever
Average Temperature	94.4 degrees	92.4 degrees	2nd Warmest

Measure	Value	1981-2010 Avg
Number of 100 degree days	96	94
Number of 110 degree days	30	24
Number of rainfall days	7	5

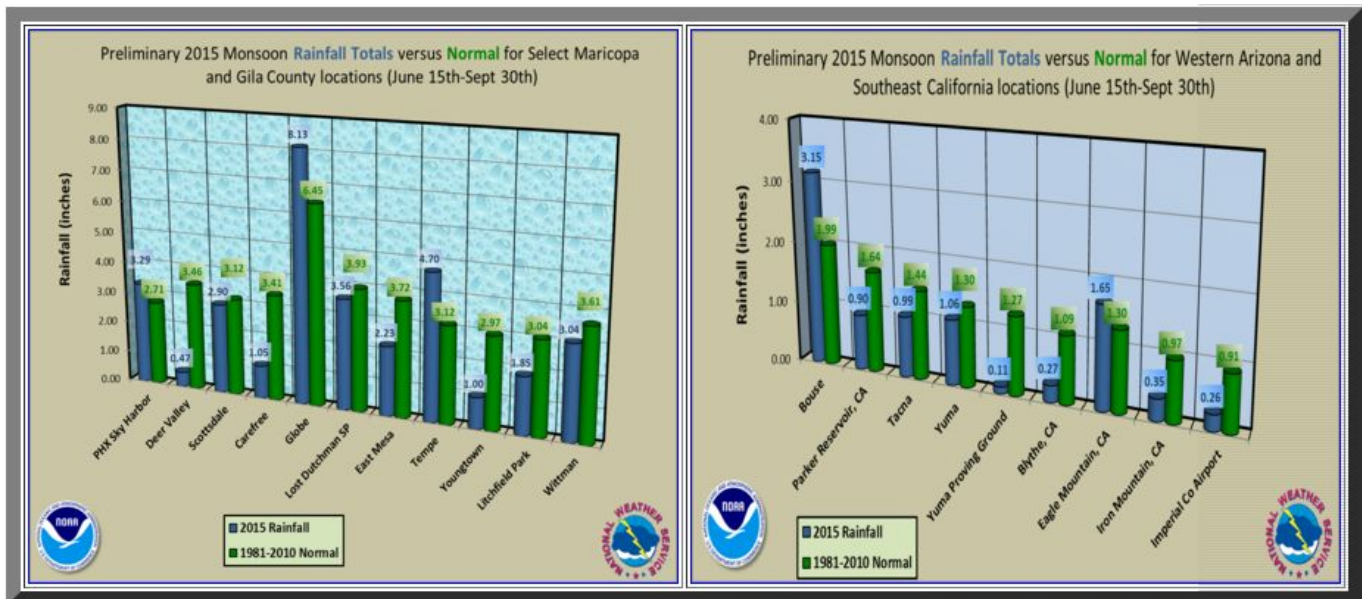
Monsoon Season 2015 rainfall across both the Phoenix metropolitan area and Maricopa County as a whole varied widely with some local communities receiving over double the average monsoon season totals, while others received well less than a quarter of normal. The biggest "winner" was the city of Wickenburg with areas around town getting over 7 inches of rain, albeit at the expense of significant flooding. Within the Phoenix metro area, the corridor from downtown Phoenix through Sky Harbor Airport and Arizona State University saw several good rain producing thunderstorms. Meanwhile, north Phoenix and the Deer Valley area experienced very few thunderstorms and only paltry amounts of rainfall. The data contained in the following graphs are courtesy of [Maricopa County Flood Control District](#). This is preliminary data and some gauge reports may contain missing data for the entire monsoon period.



## 2015 Monsoon Wrap-up (continued)



Maricopa County was not the only area to experience spotty, highly varying amounts of rain this monsoon season. Much of southeast Arizona around the Tucson area saw more than double the monsoon average, as did numerous communities along the Mogollon Rim and far northern Arizona. But, given the typical isolated nature of storms during monsoon season, neighboring communities not far away within the same county received much less. This is very normal for the monsoon season - we've just been spoiled the past couple years where large swaths of the state received beneficial rainfall.



## WFO Phoenix Staff Spotlight

By Charlotte Dewey, Meteorologist

### New Faces in WFO Phoenix...

**Andrew Deemer:** (Pathways Student) Andrew is essentially from the Phoenix Valley but has lived elsewhere from time to time. More recently, he has worked for various organizations around town doing GIS work and special projects. Andrew attended Mississippi State University, Arizona State University and several smaller schools in-between. He is currently working on a flood point mapping project and cleaning up and acquiring new GIS data for our office operations. He is married, has a set of twins at home and just welcomed a brand new baby into his family in September. Other notes include Andrew's insatiable appetite for pizza and diet sodas. He was once a radio DJ, and knows Persian.

**Bianca Hernandez:** (Meteorologist Intern) Being born in Miami, FL Bianca grew up hearing the story about the legendary Hurricane Andrew, and the devastating aftermath after the hurricane passed. Leaving nothing left of their home except a bedroom, this got her mind thinking about what exactly this monstrous part of Mother Nature was and how it could cause this much disaster. She was four years old when she knew she wanted to become a Meteorologist when she grew up. Bianca attended Florida State University, to study meteorology and graduated in 2014. During her time at FSU, Bianca interned with the NOAA Hurricane Hunters and the National Weather Service and learned an abundant amount about the weather, especially the tropics. After graduation, working as the Assistant State Meteorologist for the Florida Division of Emergency Management, Bianca learned how to properly disseminate the weather to Emergency Managers as well as a great deal about the Emergency Management operations when dangerous weather strikes. Bianca joined NWS Phoenix in June after driving cross country from Florida. On a more personal note, her two favorite things are working out and Buffalo wings.

**Rose Tibbits:** (Administrative Support Assistant) Rose has worked for the National Weather Service for 12 years. She transferred from the Weather Forecast Office in Spokane Washington to Phoenix in June 2015.

Rose is married and her husband Thorne recently retired for the military after 32 years of service.

They have three daughters, Megan 20, Gabbi 17 and Madalyn 11. Rose grew up in Texas so moving to the warmer weather here in Phoenix is a welcomed change. She enjoys all types of outdoors activities, hiking and golfing and looks forward to playing the endless options of courses here in the greater Phoenix area.

**Jeral Estupinan:** (Meteorologist in Charge) Jeral has served as a Science and Operations Officer (SOO) for two separate offices; Brownsville, TX and Miami, FL. He has worked extensively in the area of transition of research to operations, collaborating with meteorology students from the University of Miami and Florida International University. Jeral has been heavily involved in many DSS activities and has created and delivered training for the Emergency Response Meteorologist (ERMET) Pilot Program. Prior to the NWS, Jeral worked at the Weather Channel in areas such as training, forecasting, strategic planning, meteorological system design, and management. He has a Bachelor's degree and a Masters degree in Meteorology from North Carolina State University and a Ph.D. in Atmospheric Sciences from the Georgia Institute of Technology. Jeral is married and has two young daughters. He has quite a unique set of qualifications

### Departing WFO Phoenix...

**Charlotte Dewey:** (Meteorologist Intern) This is the first article in which I will be writing about myself, and in this section of all sections. That is right, after 5 ½ years at NWS Phoenix, I will be departing and heading north to a cooler climate of Salt Lake City. When I first started at WFO Phoenix back in March of 2010, I thought, "How difficult can forecasting weather in Phoenix be? It's just hot and then not as hot." True, most of the year we have very warm temperatures and then cool down slightly, but nothing compared to what I grew up knowing in Northern Colorado. No snow, no frost on the grass to walk through on the way to school, no starting your car up 20 minutes before you needed to leave to warm it up, and certainly no need for the closet full of winter coats which I still own and will now get put to good use once again! Since living and working in Phoenix, I've come to realize forecasting weather here is just as difficult, if not more so, than many other locations.



### (WFO Phoenix Staff Spotlight Continued)

The weather hazards that impact the Desert Southwest are very unique. Extreme heat, hot enough to [bake cookies](#); Strong microburst thunderstorms; enormous [city-engulfing](#) dust storms and every now and then a nice friendly rain shower.

I've been here for a new ASA, ESA, SOO, MIC (and all the Acting MIC's), 1 new Lead, 3 new Journey's, 1 new Intern; the departure of 1 lead, 3 Journey's, 1 Intern, 1 Hydrologist, 1 ESA, 1 ASA, 1 SOO, 1 MIC, 1 OPL. I've dealt with 3 deaths in my family, 1 birth. I've ran 14 half marathons and 1 full marathon in 4 different states. I've experienced up to 119°F and only about a week's worth of freezing temperatures (nothing below). All in the past 5 ½ years. I've met and made so many friends among the local TV and radio media here that when I talk to them, it's more of a friendly chat than a work related interview. In a sense, I feel like a makeshift Phoenix native sometimes. For a first duty station in the National Weather Service, Phoenix sure did show me a great time.

Prior to Phoenix, I worked at the Space Weather Prediction Center in Boulder, CO forecasting for Space Weather and observing the Sun for 2 years. This was an exciting opportunity for me and an incredibly learning experience. I attended the University of Northern Colorado where I received my Bachelor's degree in Meteorology. I am married and have a 4 year old son. While Colorado has always been "home" for me, Arizona will be a very close second as we depart on our next adventure to Utah. Thank you to all that helped make my time here in Phoenix so memorable!



Left to Right: Rose Tibbits, Jeral Estupinan, Bianca Hernandez



Charlotte Dewey





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Photography 2010

Quarterly Newsletter

National Weather Service  
Phoenix, AZ

# The Four Peaks Post

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